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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,372	06/09/2006	Shigeru Kemmochi	Q95336	5775

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EXAMINER	
GLENN, KIMBERLY E	

ART UNIT	PAPER NUMBER
2817	

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05/22/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,372	KEMMOCHI ET AL.	
	Examiner	Art Unit	
	KIMBERLY E. GLENN	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *12-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *12,13,17,19,20,24 and 26-33* is/are rejected.

7)☒ Claim(s) *14-16,18,21-23 and 25* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/9/06 7/14/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 12, 17, 19, 20, 28, 30 and 31 are rejected under 35 U.S.C. 102(e) as being anticipated by Shih US Patent 7,127, 269.

Shin a front end module for multiband and multimode wireless network systems comprising a diversity switch 11 comprising switching elements for switching the connection of pluralities of multi-band antennas 10a 10b to transmitting circuits and receiving circuits; a first diplexer circuit 12b disposed between said diversity switch and said transmitting circuits for branching a high-frequency signal into frequency bands of said communication systems; a second diplexer circuit 12a disposed between said diversity switch and said receiving circuits for branching a high-frequency signal into frequency bands of said communication systems; said first and second diplexer circuits each comprising a low pass filters 122a 122b and an high pass filters 121a 121b, a band pass filter 13b is disposed between said low pass filter 122a in said second diplexer circuit and said receiving circuit, diversity switch comprising first to fourth ports, said first port being connected to a first multi-band antenna, said second port being

connected to a second multi-band antenna, said third port being connected to said first diplexer circuit, and said fourth port being connected to said second diplexer circuit. The diversity switch 21 connects the diplexer 22a or 22b with an antenna automatically selected from the antennas 20a and 20b by the entire wireless network system according to the signal receiving situation. Though not shown the circuit must comprise a switch controller for controlling the diversity switch based on the receiving situation.

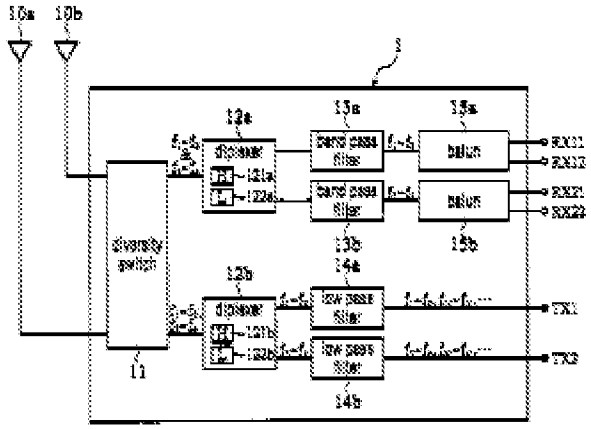

FIG. 1

The diplexer 12a has two wireless channels each with frequency band of f1 ~ f2 and f3 ~ f4, such as well known ISM (Industrial, Science, Medical) channels with frequency band of 2.4 ~ 2.5 GHz and 5.15 ~ 5.85 GHz, for carrying radio frequencies received by the wireless network system in order that the radio frequencies carried on different wireless channels can be separated from each other. the low pass filter 122a allows only signals with frequency equal to and smaller than frequency f2 to pass by, while the high pass filter 121a allows only signals with frequency equal to and larger than frequency f3 to pass by. On the other hand, the diplexer 12b is responsible for the

respective transmission of radio frequency signals carried on different channels when the wireless network system is preparing for a signal transmission.

The band pass filters 13a and 13b and baluns 15a and 15b are one-on-one connected to each other. In this way, the radio frequency signals carried on the channels with frequency band of f1 ~ f2 and f3 ~ f4 can be separately transformed into two radio frequency signals with phase difference of 180 degree and received by the receive terminal RX11, RX12, RX21, and RX22, respectively.

The front-end module uses multiple layers of a low temperature cofired ceramic substrate 31 to form an integrated module 3.

Patterning technology is used to form the passive elements such as capacitors and inductances composing the elements including the diplexers 12a and 12b, the band pass filters 13a, 13b, the baluns 15a, 15b and the low pass filters 14a, 14b.

The GaAs switch and the subordinate passive elements such as capacitors having large diversity switches 11 and resistors, and other active elements such as IC semiconductor elements on the upmost layer of the integrated module 3, i.e. the surface layer 311, by means of surface mounting technology.

The inductances are formed on the conductive layers 41 inside each of low temperature cofired ceramic substrate 31 as strip type electrodes.

The capacitors are formed on the conductive layers 51 inside each low temperature cofired ceramic substrate 31 as block electrodes by block patterning.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shin US Patent 7,127,269 in view of Itoh et al US Patent 5,784,687.

See the above 102(e) rejection for a discussion of the Shin reference.

Thus, Shin is shown to teach al the limitation of the claims with the exception of a matching circuit disposed between the multiband antenna and the high frequency switch.

Itoh et al disclose a matching circuit 70a connected between the antenna 30 and the changeover switch. (figure 1b)

One of ordinary skill in the art would have found it obvious to provide a matching circuit between the antennas and diversity switch as taught By Itoh et al.

The motivation for this modification would have been provide an impedance match between antennas, transmitter and receiver circuit.

Allowable Subject Matter

Claims 14-16, 18, 21-23 and 25 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Fukamachi et al US Patent 7,057,472, Itakura et al US Patent 7,206,551, Hagiwara et al US Patent Application Publication 2006/0044080 and Okuyama et al US Patent Application Publication 2006/0286942.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KIMBERLY E. GLENN whose telephone number is (571)272-1761. The examiner can normally be reached on Monday-Friday 7:30 to 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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